

Claims:

1. A device for thickening or dehydrating sludges, sediments from waters or the like, particularly excess sludges in sewage treatment plants, having the following features:
 - a double-start threaded or multiple-start threaded eccentric screw pump (10) having a pump shaft (14) at one end and a suction duct connection for thin sludge (28) at the other end
 - a drive mechanism coupled to the driving shaft (14, 18)
 - a feeding means arranged between the eccentric screw pump (10) and the drive mechanism which is driven by the drive mechanism and is arranged in an elongate casing (16) which is extended through by the pump shaft (14), with a separating device being provided in the form of a cylindrical-shaped screen (22) in the casing (16) to separate the sludge and liquid
 - a filtrate discharge outlet (26) at the upstream side of the cylindrical-shaped screen (22) and a thickened-sludge discharge outlet at the downstream side of the cylindrical-shaped screen (22)
 - a flocculant supply device which is connected to the suction duct connection of the eccentric screw pump (10) and/or the area which connects between the eccentric screw pump (10) and the cylindrical-shaped screen (22), wherein
 - the cylindrical-shaped screen (22) is rotatably supported about its axis and is adapted to be rotatingly driven by the drive mechanism, and wherein
 - the cylindrical-shaped screen (22) has feeding elements on the inside wall to deliver the sludge towards the thickened-sludge discharge outlet.

2. The device for thickening or dehydrating sludges, sediments from waters or the like, particularly excess sludges in sewage treatment plants, having the following features:

- a double-start threaded or multiple-start threaded eccentric screw pump (10) having a pump shaft (14) at one end and a thickened-sludge discharge outlet at the other end
 - a feeding means disposed in front of the eccentric screw pump which is driven by the drive mechanism and is arranged in an elongate casing (16) which is extended through by the pump shaft (14)
 - a separating device for the separation of the sludge and liquid in the casing (16) between the eccentric screw pump (10) and the drive mechanism
 - a filtrate discharge outlet at the upstream side of the separating device and a sludge charge inlet on the entrance at the pump shaft side of the eccentric screw pump (10)
 - and a device for the supply of a mixture of thin sludge and flocculant on the upstream side of the feeding means, wherein
 - the separating device has a cylindrical-shaped screen (22) which is adapted to be rotatably driven by the drive mechanism in the casing (16) and is surrounded by the pump shaft (14), and wherein
 - the cylindrical-shaped screen (22) has feeding elements (23) for feeding the sludge to the charge inlet of the eccentric screw pump (10).
- 20 3. The device according to claim 1 or 2, characterized in that the feeding means are formed as a screw flight or as segments of a screw flight.
4. The device according to claim 3, characterized in that the screw flight or the segments extend approximately up to the pump shaft (14).
- 25 5. The device according to any one of claims 1 to 4, characterized in that the pump shaft (14) and the cylindrical-shaped screen (22) are adapted to be driven via a gearing assembly of the drive mechanism in such a way that the cylindrical-shaped screen (22) is adapted to be driven at a different number of

revolutions and/or in a different sense of rotation with respect to the pump shaft.

- 5 6. The device according to any one of claims 1 to 5, characterized in that the region of the pump shaft (14) that is located within the cylindrical-shaped screen (22) is provided with feeding elements (60), preferably a feed screw.
- 10 7. The device according to claim 6, characterized in that the feeding elements or the screw flight extend radially approximately up to the cylindrical-shaped screen (22).
- 15 8. The device according to any one of claims 1 to 7, characterized in that the bottom (24) of the casing (16), towards the eccentric screw pump (10) or the drive mechanism, has a gradient at the end of which the filtrate discharge outlet (26) is arranged.
- 20 9. The device according to any one of claims 1 to 8, characterized in that the supplying device has a rotary-vane mixer.
- 20 10. The device according to any one of claims 1 to 9, characterized in that the cylindrical-shaped screen (22) has associated therewith a scouring device which directs scouring liquid to the outer surface of the cylindrical-shaped screen (22).
- 25 11. The device according to claim 10, characterized in that a scouring strip (34) having at least one scour nozzle (35) is stationarily arranged in parallel with the shaft axis.

12. The device according to claim 10, characterized in that a scouring strip having at least one nozzle is supported crosswise with the axis of the pump shaft and is driven by a scouring drive to scour the screen surface continuously or intermittently.

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13. The device according to claim 12, characterized in that the movement of the scouring strip is coupled to the rotation of the cylindrical-shaped screens.

14. The device according to any one of claims 11 to 13, characterized in that a control device is provided for the scouring strip that controls the movement of the scouring strip and/or the discharge of scouring liquid, e.g. in a time-dependent manner.

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